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CONTENTS:

Marlatt—A Newly-imported Scale-Pest on Japanese Hemlock (Rhynch.)	385	dwelling Larva of <i>Mecistogaster modestus</i>	402
Sherman and Brimley—Orthoptera of North Carolina	387	Skinner—New Species or Sub-species of N. American Butterflies (Lepid.)	412
Needham—Notes on some Nymphs of Gomphinae (Order Odonata) of the Hagen Collection	392	Skinner— <i>Adelpha</i> (<i>Heterochroa</i>) <i>breddowi</i> and <i>californica</i> (Lepid.)	414
Wolley Dod—Notes on <i>Nephelodes Guen.</i> (Lepid.)	397	Bergroth—On two species of the Berytid genus <i>Capyella</i> Bredd. (Rhyn.)	416
Calvert—Studies on Costa Rican Odonata. II—The habits of the Plant-		Editorial	417
		Notes and News	418
		Entomological Literature	423

A Newly-Imported Scale-Pest on Japanese Hemlock (Rhynch.).

By C. L. MARLATT, Bureau of Entomology, U. S. Dept. of Agriculture, Washington, D. C.

(Plate XIII.)

Aspidiotus (*Diaspidiotus*) *tsugae* n. sp.

Scale of female.—Diameter, 1 1-3 mm.; circular, strongly convex, dark brown, rather pointed or nipped at center; central area usually covered by secretion, when rubbed a light resinous yellow.

Scale of male.—The normal oval shape, much smaller than female, secretion covering center or nipple, somewhat ashen, forming a light central spot.

Adult female.—Oval; .85 mm. long, .68 mm. broad, in general hyaline as mounted in balsam; *anal plate* broad, rounded, .34 mm. broad at extreme base, and .18 mm. long, nearly hyaline except the parapsyses; two pairs of short and rounded lobes, latter central probably due to wear (newly molted adult individuals will probably exhibit the usual lateral shoulders); beyond the second lateral incision a prominent serrated projection having three or more distinct minute teeth; edge of pygidium beyond this projection unbroken; incisions median and lateral scarcely below the general level of the edge of the pygidium; parapsyses very prominent and robust, pear-shaped, two prominent ones at the base of each lobe, most of them fully lobe length, and another below the second lateral incision; also a few smaller para-

paraphyses in the lobular area; plates broad, branched at tip, equaling the lobes in length, two median, two in first lateral incision and three in second lateral incision; spines short, inconspicuous; anal opening large, oval, in longest diameter more than twice lobe length, less than twice its own length from apex; paragenitals, counting from the anterior group, 2-4, 5-7, 4-5, not massed, no parastigmal pores; dorsal pores large, narrow, those easily seen are row of three extending from second lateral incision, somewhat double row or group of from five to seven at about the middle point of the side of the pygidium, and a group of seven or eight at the basal or anterior lateral angle of the pygidium; the actual number of pores is greater, as shown by the presence of the internal secretory organs, namely, median one, first incision 3, second incision 5, the laterals 6-8 and anterior angle 8; basal thickenings not prominent, obscure; ventral thickenings normal and not much developed.

Type.—Bureau of Entomology, No. 14,185. On Japanese hemlock (*Tsuga* sp.), received from Dr. J. B. Smith, March 11, 1910, who collected it in the course of his quarantine work from stock imported from Japan.

From the specimens submitted, the plant is apparently heavily infested, chiefly on the underside of the leaflets. The condition indicates a scale pest capable of doing much damage.

This scale insect is a good example of the difficulties met with in attempting to subdivide the old and unwieldy genus *Aspidiotus* into subgenera. The character of the lobes, the prominent serrated, or toothed, projection laterad of the lobes, and large anal opening remind one very much of the species of *Aspidiotus* (s. str.) which infest pines. It comes, in fact, very close to the Chinese species described by the writer as *Aspidiotus meyeri*. The strong development, however, of the paraphyses is a feature found in none of the pine species referred to, and allies it with the genus (or subgenus) *Diaspidiotus*. The paraphyses seems to be a fairly definite and prominent character in *Diaspidiotus* and most of the genera or subgenera erected from the old genus *Aspidiotus*. In the case of *Aspidiotus* (s. str.), the paraphyses are reduced to mere points, or are practically wanting, but all gradations between this condition and well developed paraphyses are found, indicating plainly the entire artificiality of classification based on this character. In

this instance we have a species which is evidently closely related to other pine species, perhaps even being a mere variety, but on this character would fall in a different subgenus. The absence of plates laterad of the serrated lobe may be due simply to age and wear, as is undoubtedly also the short and rounded condition of the two median pairs of lobes. The differences, however, in the plates, lobes, lateral serrated projection, and especially in the paraphyses, warrant, in connection with the difference in habitat, assigning a new name to this form.

Orthoptera of North Carolina.

By F. SHERMAN, JR., and C. S. BRIMLEY, Raleigh, N. C.

The following list includes some records of Orthoptera, known by the authors to occur in North Carolina. When sufficient data are available to ascertain distribution this is indicated by such terms as "whole state," "mountains," "eastern section," etc. Where we have only a few scattered records, the localities are specified. We have not included dates of capture, but can supply them to interested persons on request.

In addition to the authors, persons who have made material contributions to our knowledge of the Orthoptera of the state are: Professor A. P. Morse, Wellesley College, Mass.; Mr. G. M. Bentley, Knoxville, Tenn., and Mr. R. S. Woglum, of the U. S. Bureau of Entomology,—the last two having both been engaged in entomological work in this state in former years; and Messrs. Rehn and Hebard, of Philadelphia.*

We have arranged the *families* in the usual recognized sequence, the *genera* alphabetically in each family, and the *species* alphabetically in each genus.

The paper is compiled from the card catalogue of the Division of Entomology, N. C. State Department of Agriculture, at Raleigh.

*At the time this article was written, the authors had not seen Messrs. Rehn and Hebard's very valuable article on the Orthoptera of North Carolina, entitled "Preliminary Studies of North Carolina Orthoptera" (Proc. Acad. Nat. Sci. Phil. Nov. 1910), and hence have omitted a number of species included by these gentlemen.